

Claims

What is claimed is:

5

1. In a network including a local server coupled to a central server, the local server being coupled to a plurality of network devices, a method of interactively controlling from one of the plurality of network devices a flow of audio visual data from the central server to the network device, the method comprising:

10

obtaining a control command at the network device, the control command indicating a desired modification to the flow of the audio visual data from the central server to the network device;

15

sending the control command from the network device to the central server via the local server; and

receiving a modified flow of the audio visual data from the central server at the network device in response to the control command.

20

2. In a network including a local server coupled to a central server, the local server being coupled to a plurality of network devices, a method of interactively controlling from one of the plurality of network devices a flow of audio visual data from the central server to the network device, the method comprising:

25

obtaining a control command at the network device, the control command indicating a desired modification to the flow of the audio visual data from the central server to the network device;

sending the control command from the network device to the central server via the local server; and

30

modifying the flow of the audio visual data from the central server to the network device in response to the control command.

3. The method as recited in claim 2, wherein modifying the flow of the audio visual data from the central server to the network device in response to the control command comprises:

5 modifying the flow of the audio visual data from the central server to the local server; and

 when modifying the flow of the audio visual data from the central server to the local server includes sending a compressed audio visual data stream to the local server, sending the compressed audio visual data stream to
10 the network device.

4. The method as recited in claim 3, further comprising:

 prior to sending the compressed audio visual data stream to the network device, storing the compressed audio visual data stream in a memory
15 associated with the local server.

5. The method as recited in claim 3, wherein sending the compressed audio visual data stream to the network device is performed in real time.

20

6. In a network including a local server coupled to a central server, the local server being coupled to a plurality of network devices, a method of interactively controlling from one of the plurality of network devices a flow of
25 audio visual data from the central server to the network device, the method comprising:

 receiving a control command at the central server from one of the plurality of network devices, the control command indicating a desired modification to the flow of the audio visual data from the central server to the
30 network device; and

 modifying the flow of the audio visual data from the central server to the local server in response to the control command, thereby enabling the flow

of audio visual data from the central server to the network device to be interactively controlled by the network device.

7. In a network including a local server coupled to a central server, the local server being coupled to a plurality of network devices, a method of transmitting a audio visual data stream from the central server to one of the plurality of network devices, the method comprising:

receiving a control command from one of the plurality of network devices, the control command indicating a desired modification to the audio visual data stream being transmitted from the central server to the one of the plurality of network devices via the local server; and

sending a modified audio visual data stream from the central server to the local server in response to the control command, thereby enabling a audio visual data stream being transmitted from the central server to the network device to be interactively controlled from the network device.

8. In a network including a local server coupled to a central server, the local server being coupled to a plurality of network devices, a method of interactively controlling from one of the plurality of network devices a flow of audio visual data from the central server to the network device, the method comprising:

receiving a control command at the local server from the network device, the control command indicating a desired modification to the flow of the audio visual data from the central server to the network device;

sending the control command to the central server;

receiving a modified audio visual data flow from the central server in response to the control command; and

transmitting the modified audio visual data flow from the local server to the network device, thereby enabling the network device to modify the flow of the audio visual data from the central server to the network device.

9. The method as recited in claim 8, further comprising:
determining whether a file associated with the control command is
stored in a memory associated with the local server; and
performing the sending and receiving steps when the file associated
5 with the control command is not stored in the memory associated with the
local server.
10. The method as recited in claim 8, further comprising:
prior to sending the modified audio visual data flow from the local
10 server to the network device, storing the modified audio visual data flow in a
memory associated with the local server.
11. The method as recited in claim 8, wherein the modified audio visual
data flow is associated with a first file that is different from a second file
15 associated with the audio visual data that is sent from the central server to the
network device.
12. The method as recited in claim 8, wherein the modified audio visual
data flow is sent from the local server to the network device at a speed
20 identical to that of the modified audio visual data flow received from the
central server.
13. The method as recited in claim 8, wherein the modified audio visual
data flow is received by the local server at a speed that is different from a
25 speed of the flow of the audio visual data from the central server to the
network device prior to sending the control command to the central server.
14. The method as recited in claim 8, wherein the modified audio visual
data flow is initiated at a first point in a file that is different from a second
30 point in the file at which the control command is received at the local server
during the flow of the audio visual data.

005207 80456960

20. The method as recited in claim 19, further comprising:
when it is determined that the specified file is not stored in the memory
associated with the local server, receiving an audio visual data stream from the
5 central server in response to the control command and sending the audio
visual data stream from the local server to the network device.
21. The method as recited in claim 19, further comprising:
receiving an audio visual data stream from the central server at the
10 local server in response to the control command; and
sending the audio visual data stream from the local server to the
network device.
22. The method as recited in claim 20, further comprising:
when it is determined that the specified file is not stored in the memory
associated with the local server, storing the audio visual data stream in a file in
the memory associated with the local server.
23. The method as recited in claim 19, further comprising:
receiving compressed data associated with the specified file from the
central server at the local server in response to the control command; and
25 storing the specified file in the memory associated with the local
server.
24. In a local server, the local server being coupled to a central server in a
30 network, the local server being coupled to a plurality of network devices, a
method of interactively controlling from one of the plurality of network
devices a flow of audio visual data from the central server to the network

device, the local server having a memory associated therewith, the method comprising:

- receiving a control command at the local server from the network device, the control command indicating a desired initiation of data flow associated with a specified file;
- 5 sending the control command to the central server;
- receiving an audio visual data stream from the central server at the local server in response to the control command; and
- transmitting the audio visual data stream from the local server to the network device.

25. The method as recited in claim 24, further comprising:
- storing the audio visual data stream in the memory associated with the local server.

26. A central server adapted for being coupled to a local server, the local server being coupled to a plurality of network devices, the central server being adapted for transmitting a audio visual data stream from the central server to one or more of the plurality of network devices via the local server, comprising:

- a processor; and
- 25 a memory, the memory storing therein instructions for:
 - receiving a control command from one of the plurality of network devices, the control command indicating a desired modification to the audio visual data stream being transmitted from the central server to the one of the plurality of network devices via the local server; and
 - 30 sending a modified audio visual data stream from the central server to the network device via the local server in response to the

control command, thereby enabling an audio visual data stream being transmitted from the central server to the network device to be interactively controlled from the network device.

5

27. A local server adapted for being coupled to a central server and to a plurality of network devices, the local server being configured for interactively controlling a flow of audio visual data from the central server to one of the plurality of network devices, comprising:

10

a processor; and

a memory storing therein the following instructions:

instructions for receiving a control command at the local server from the network device, the control command indicating a desired modification to the flow of the audio visual data from the central server to the network device;

15

instructions for sending the control command to the central server;

instructions for receiving a modified audio visual data flow from the central server in response to the control command; and

20

instructions for transmitting the modified audio visual data flow from the local server to the network device, thereby enabling the network device to modify the flow of the audio visual data from the central server to the network device.

25

28. The local server as recited in claim 27, the memory further comprising: instructions for determining whether a file associated with the control command is stored in a memory associated with the local server; and

instructions for performing the sending and receiving steps when the file associated with the control command is not stored in the memory

30

associated with the local server.

a central server having a memory associated therewith, the memory having stored therein a plurality of files;

a local server coupled to the central server and having a memory associated therewith, the local server configured to obtain a file from the central server when the file that is requested is not stored in the memory associated with the local server; and

a plurality of network devices coupled to the local server, each of the plurality of network devices being configured for sending a file request to the local server, the file request indicating a request for audio visual data associated with a requested file.

33. The system as recited in claim 32, further comprising:
a memory associated with the local server;

wherein the local server is configured to store the file in the memory when the file is obtained from the central server.

34. The system as recited in claim 33, wherein the local server is configured to transmit an audio visual data stream associated with the file to one of the plurality of network devices when the file is obtained from the central server in response to the file request received from the one of the plurality of network devices.

35. The system as recited in claim 32, wherein the local server is configured to transmit an audio visual data stream associated with the file to one of the plurality of network devices when the file is obtained from the central server in response to the file request received from the one of the plurality of network devices.

36. The system as recited in claim 35, wherein the central server is configured to transmit a modified audio visual data stream in response to a control command received from the one of the plurality of network devices and wherein each of the plurality of network devices is configured to send a control command indicating a desired modification to the audio visual data stream being transmitted to the corresponding network device.

37. A local server adapted for being coupled to a central server and a plurality of network devices, the local server being configured to interactively control from one of the plurality of network devices a flow of audio visual data from the central server to one of the plurality of network devices, comprising:

a processor; and

a memory associated therewith, the memory storing therein the following instructions:

instructions for receiving a first control command at the local server from the network device, the first control command indicating a desired initiation of data flow associated with a specified file;

instructions for forwarding the first control command to the central server;

instructions for receiving an audio visual data stream from the central server at the local server in response to the first control command;

instructions for transmitting the audio visual data stream from the local server to the network device;

instructions for receiving a second control command at the local server from the network device, the second control command indicating a desired modification of data flow;

instructions for forwarding the second control command to the central server;

instructions for receiving a modified audio visual data stream from the central server at the local server in response to the second control command; and

instructions for transmitting the modified audio visual data stream
5 from the local server to the network device.

38. The local server as recited in claim 37, the memory further comprising:
10 instructions for storing the first audio visual data stream in the memory associated with the local server.

39. The local server as recited in claim 37, wherein the specified file is a
15 karaoke file.

40. The local server as recited in claim 37, wherein the specified file is a
movie file.

41. A network device adapted for being coupled to a network including a local server coupled to a central server, the local server adapted for being coupled to a plurality of network devices, the network device being adapted
25 for interactively controlling a flow of audio visual data from the central server to the network device, comprising:

a processor; and
a memory, at least one of the processor and the memory being adapted
for:

30 obtaining a control command at the network device, the control command indicating a desired modification to the flow of the audio visual data from the central server to the network device;

sending the control command from the network device to the
central server via the local server; and

receiving a modified flow of the audio visual data from the
central server at the network device in response to the control
command.

5

42. A computer-readable medium adapted for interactively controlling
from a network device a flow of audio visual data from a central server to the
network device, the central server being connected to the network device via a
local server adapted for being coupled to a plurality of network devices,
comprising:

instructions for receiving a control command from the network device,
the control command indicating a desired initiation of data flow associated
with a specified file;

instructions for connecting to the central server via the Internet;
instructions for sending the control command to the central server; and
instructions for receiving an audio visual data stream transmitted from
the central server via the local server in response to the control command.

43. The computer-readable medium as recited in claim 42, further
comprising:

instructions for transmitting the audio visual data stream to the
network device.

44. The computer-readable medium as recited in claim 42, further
comprising:

instructions for requesting that the specified file be downloaded to the
local server.

45. The computer-readable medium as recited in claim 42, wherein the specified file is a karaoke file.

5 46. The computer-readable medium as recited in claim 42, wherein the specified file is a movie file.

47. A computer-readable medium adapted for interactively controlling from a network device a flow of audio visual data from a central server to the
10 network device, the central server being connected to the network device via a local server adapted for being coupled to a plurality of network devices, comprising:

instructions for connecting to the central server via the Internet;
instructions for receiving a control command from the network device,
15 the control command requesting that a specified file be downloaded from the central server to the local server, thereby enabling transmission of audio visual data associated with the specified file to be controlled at the local server by the network device; and
instructions for sending the control command to the central server.

20

48. The computer-readable medium as recited in claim 47, further comprising:

instructions for selecting the specified file from one of a plurality of files stored in a memory associated with the central server.

25

49. The computer-readable medium as recited in claim 47, wherein the specified file is a karaoke file.

50. The computer-readable medium as recited in claim 47, wherein the
30 specified file is a movie file.